

**FOR CONTRACT No.: 07-4T3704
PROJECT ID 0700020934**

INFORMATION HANDOUT

**AERIALLY DEPOSITED LEAD AND TITLE 22 METALS
SITE INVESTIGATION REPORT**

**HEALTH AND SAFETY PLAN
SITE INVESTIGATION REPORT**

**LA-210 PM R5.7
LOS ANGELES COUNTY, CALIFORNIA**

ROUTE: 07-LA-210, PM R5.7

AERIALLY DEPOSITED LEAD AND TITLE 22 METALS SITE INVESTIGATION REPORT



**LOS ANGELES STATE ROUTE 210, POST MILE R5.762
LOS ANGELES COUNTY, CALIFORNIA**

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 SOUTH MAIN STREET, 12.274
LOS ANGELES, CALIFORNIA

PREPARED BY:
GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA

CALTRANS CONTRACT 07A2729
TASK ORDER NO. 15
EA NO. 4T3701
PROJECT NO. 07000209341



GEOCON PROJECT NO. S9475-06-15

December 12, 2011



Project No. S9475-06-15
December 12, 2011

VIA OVERNIGHT COURIER

Mr. Sameer Khaitan
California Department of Transportation, District 7
Office of Environmental Engineering & Corridor Studies
100 South Main Street, Suite 12-280
Los Angeles, California 90012

Subject: AERIALLY DEPOSITED LEAD AND TITLE 22 METALS
SITE INVESTIGATION REPORT
LOS ANGELES STATE ROUTE 210 POST MILE R5.762
LOS ANGELES COUNTY, CALIFORNIA
CONTRACT NO. 07A2729, TASK ORDER NO. 15,
EA. 4T3701 (07000209341)

Dear Mr. Khaitan:

In accordance with Caltrans Contract No. 07A2729 and Task Order No. 15 dated November 28, 2011, Geocon Consultants, Inc. has conducted an aerially deposited lead and heavy metals soil investigation along the left shoulder of the eastbound Route 210 connector to westbound Route 118 in Los Angeles County. The accompanying report summarizes the services performed, including soil sampling, global positioning system data acquisition, laboratory analyses, and data evaluation.

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please call us if you have questions.

Sincerely,

GEOCON CONSULTANTS, INC.

Mike Akoto
Staff Geologist

(5) Addressee



Michael P. Conkle, PG
Contract Manager

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EXECUTIVE SUMMARY

Geocon Consultants, Inc. performed an aerially deposited lead (ADL) and Title 22 metals soil investigation along the left shoulder of the eastbound Route 210 connector to westbound Route 118 (Route 210 post mile [PM] R5.762) in Los Angeles County, California. The objective of the investigation was to evaluate soil at the site for the potential presence of ADL and other metals. The California Department of Transportation (Caltrans) will use information from the investigation to determine soil disposal options and identify health and safety concerns during construction activities.

Lead Results

None of the soil samples collected during the investigation exhibited total lead concentrations above the Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram or soluble lead concentrations above the Soluble Threshold Limit Concentration (STLC) of 5.0 milligrams per liter. Based on the reported concentrations of total and soluble lead the upper 2.5 feet of soil may be reused or disposed of as non-hazardous with respect to lead content (Caltrans Type-X).

Title 22 Metals

Title 22 metals were not reported at or above their respective TTLC or ten times their respective STLCs. The concentrations of metals reported in the soil samples were below their respective residential and industrial California Human Health Screening Levels (CHHSLs) except for arsenic. The reported arsenic concentrations are consistent with published background levels in Los Angeles County.

pH Results

Soil pH was reported to range from 8.2 to 8.8.

Worker Protection

Per Caltrans' requirements, contractor(s) should prepare a project-specific Lead Compliance Plan to prevent or minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other appropriate health and safety protocols and procedures for the handling of lead-impacted soil.

AERIALY DEPOSITED LEAD AND TITLE 22 METALS SITE INVESTIGATION REPORT

1. INTRODUCTION

Geocon Consultants, Inc. performed an aerially deposited lead (ADL) and Title 22 metals soil investigation along the left shoulder of the eastbound Route 210 connector to westbound Route 118 (Route 210 post mile [PM] R5.762) in Los Angeles County, California. The project location is shown on the vicinity map provided as Figure 1. The investigation was conducted under California Department of Transportation (Caltrans) Contract No. 07A2729, Task Order (TO) No. 15, and Expense Authorization 4T3701, dated November 28, 2011.

1.1 Project Description

Caltrans proposes to install a concrete barrier and improve the lighting system along the eastbound Route 210 connector to westbound Route 118. The proposed improvements will involve soil excavation and other earthwork activities.

1.2 Investigation Objective

The objective of the investigation was to evaluate concentrations of metals, including ADL, in soils that will potentially be disturbed during excavation for the proposed project improvements. Caltrans will use information obtained from the investigation to determine soil management options (e.g., disposal or onsite reuse) and identify health and safety concerns during proposed construction activities.

2. BACKGROUND

2.1 Aerially Deposited Lead in Soil

Testing by Caltrans throughout the State has shown that ADL exists in soil along major highway routes due to vehicle exhaust containing lead from the combustion of leaded gasoline. The concentration and distribution of ADL in soil is a function of many variables, but in general, highway age and traffic volume appear to be primary factors.

2.2 Hazardous Waste Classification Criteria

Regulatory criteria to classify a waste as “California hazardous” for handling and disposal purposes are contained in the California Code of regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as “Resource, Conservation and Recovery Act (RCRA) hazardous” are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), §261.

For waste containing metals, the waste is classified as “California hazardous” when: (1) the representative total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or (2) the representative soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have the potential of exceeding the STLC when the waste’s total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is typically performed. A material is classified as “RCRA hazardous” when the soluble metal content exceeds the Federal Regulatory Level based on the Toxicity Characteristic Leaching Procedure (TCLP). The TTLC value for lead is 1,000 milligrams per kilogram (mg/kg). The STLC and TCLP values for lead are both 5.0 milligrams per liter (mg/l).

The above regulatory criteria are based on toxicity. Wastes may also be classified as hazardous based on other criteria such as ignitability, corrosivity, and reactivity. For the purposes of ADL investigations, toxicity and corrosivity (e.g., chemical concentrations and soil pH values, respectively) are the primary factors considered for waste classification. Waste that is classified as either “California hazardous” or “RCRA hazardous” requires management as a hazardous waste and disposal at an appropriately permitted disposal facility.

The Department of Toxic Substances Control (DTSC) regulates and interprets hazardous waste laws in California. DTSC generally considers excavated or transported materials that exhibit “hazardous waste” characteristics to be a “waste” requiring proper management, treatment and disposal. Soil that contains lead above hazardous waste thresholds and is left in-place would not be necessarily classified by DTSC as a “waste.” The DTSC has provided site-specific determinations that “movement of wastes within an area of contamination does not constitute “land disposal” and, thus, does not trigger hazardous waste disposal requirements.” Therefore, lead-impacted soil that is scarified in-place, moisture-conditioned, and re-compacted during roadway improvement activities might not be considered a “waste.” DTSC should be consulted to confirm waste classification. It is noted that in addition to DTSC regulations, health and safety requirements and other local agency requirements may also apply to the handling and disposal of lead-impacted soil.

2.3 California Human Health Screening Levels

The California Environmental Protection Agency (Cal/EPA) has prepared technical reports entitled *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* (Cal/EPA, January 2005) and *Revised California Human Health Screening Levels for Lead* (Cal/EPA, September 2009), which present CHHSLs for soil, shallow soil gas, and indoor air to assist in evaluating sites impacted by releases of hazardous chemicals.

The CHHSLs are concentrations of 44 hazardous chemicals that Cal/EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of Cal/EPA. The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of one in a million and a hazard quotient or 1.0 for non-cancer effects. Under most circumstances, the presence of a chemical at concentrations below its respective CHHSL can be assumed to not pose a significant risk. The presence of a chemical at concentrations above a CHHSL does not indicate that adverse impacts to human health are occurring or will occur, but suggests that further evaluation is warranted (Cal/EPA, January 2005).

The following CHHSLs were used for comparison: Table 1 of the *California Human Health Screening Levels for Soil and Comparison to Other Potential Environmental Concerns* (Cal/EPA, January 2005) and Table 3 of the *Comparison of 2005 CHHSLs to Revised CHHSLs* (Cal/EPA, September 2009). The respective CHHSLs are listed at the end of Table 2 for comparative purposes.

3. SCOPE OF SERVICES

We performed the scope of services summarized below as requested by Caltrans.

3.1 Pre-field Activities

- Prepared a *Health and Safety Plan* (HSP) dated November 2011, to provide guidelines on the use of personal protective equipment and the health and safety procedures to be implemented by Geocon personnel during field activities. The HSP specified the safety procedures for field work, summarized chemical hazard information, and identified site safety officers, emergency contacts, and the locations of emergency medical care facilities.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Provided a minimum of 48-hours notice to the local public utilities via Underground Service Alert prior to job site mobilization.

3.2 Field Activities

The soil investigation was performed on November 30, 2011. The investigation consisted of collecting 15 soil samples from 5 hand-auger borings. Soil samples were collected from each of the borings at the following depth intervals: surface to 0.5 foot, 1 to 1.5 feet, and 2 to 2.5 feet. As specified on the figures furnished to Geocon in the TO, the borings were advanced at approximately 80-foot intervals within the footprint of the proposed construction. The approximate boring locations are shown on the Site Plan, Figure 2.

3.3 GPS Coordinates

The borings were located utilizing a global positioning system (GPS) receiver. Data was recorded in the field and downloaded in the office using surveying TerraSync™ or similar software, in State Plane 83 coordinates. Boring latitude and longitudes coordinates in decimal degrees are provided in Table 1.

3.4 Laboratory Analyses

Laboratory analyses were performed by ATL. Copies of the laboratory report and chain-of-custody (COC) documentation are included in Appendix A. Based on the Caltrans TO, all of the samples were analyzed for the following:

- Total lead by EPA Test Method 6010B.
- WET lead using EPA Test Method 7420 with citrate acid as the extractant.
- TCLP lead using EPA Test Method 7420.

In addition, the surface to 0.5 foot sample from each boring was also analyzed for California Code of Regulations (CCR) Title 22 metals following EPA Test Method 6010B (metals) and EPA 7471 (mercury), and pH using EPA Test Method 9040B.

One equipment blank (EB) water sample was analyzed for total lead using EPA Test Method 6010B.

3.5 Report Preparation

This report was prepared to summarize the objectives, procedures, and results of the investigation activities requested by Caltrans.

4. INVESTIGATIVE METHODS

4.1 Soil Sampling

Soil samples were collected from the five borings by using hand-auger sampling equipment. Surface vegetation (e.g., native grasses/shrubs and landscaping plants) at the boring locations were removed prior to boring/sampling activities. Soil collected from the borings were placed into new re-sealable plastic bags and homogenized in the field within the sample bag. Homogenized soil within the bag was then transferred into new 4-ounce laboratory-provided glass soil jars, capped, labeled with the sample date/time and a unique soil sample number, placed in a chilled ice chest, and delivered to the analytical laboratory the day the samples were collected.

Caltrans assigned a unique ID number to this project (1158). This ID number was included in the database, figures, and in the boring soil sample names. Soil sample identification numbers were assigned (1158-101) based on the TO boring and sample naming convention. Soil sample numbers

were designated by the boring number and the bottom of the 6-inch depth interval from which the sample was collected. For example, the soil sample designated 1158-101-0.5 was obtained from approximately 0.0 to 0.5 foot.

Quality Assurance/Quality Control (QA/QC) procedures conducted during field activities included sampling equipment decontamination prior to hand-auger boring, and use of new re-sealable plastic sample bags, laboratory supplied sample containers, and sample chain-of-custody documentation. Soil sampling equipment was cleaned between each boring by washing the equipment with an AlconoxTM solution followed by a double rinse with de-ionized water. Sampling activities were conducted under supervision of Geocon's field manager.

The borings were backfilled with surface soil from the immediate vicinity of the boring location. Decontamination water was discharged to the ground surface away from areas potentially associated with surface water bodies or storm drain inlets.

4.2 Equipment Blank Sampling

One equipment blank sample was collected to verify proper cleaning of the sampling equipment. The equipment blank sample was obtained by passing distilled water over the decontaminated sampling equipment and into unpreserved laboratory-provided container.

4.3 Deviations from Task Order

The Caltrans TO dated November 28, 2011, served as the workplan for this investigation. Geocon performed the scope of work as described in the TO without exceptions that would materially affect investigation results.

5. FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Site Conditions

The soil conditions encountered at the site generally ranged from brown to slightly dark brown, moist, silty sand to gravely sandy silt. Surface and groundwater were not encountered at the boring locations.

5.2 Analytical Results

Soil analytical results are summarized in Tables 1 and 2. Analyses were processed using expedited 72 hour turnaround time. Results were J-Flagged "J" between the Practical Quantitation Limit (PQL) and the calculated Method Detection Limit (MDL). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL. Copies of the laboratory report and chain-of-custody documentation are presented as Appendix A. Analytical results are summarized below:

- **Total lead** was reported for the 15 soil samples at concentrations ranging from 1.4 to 53 mg/kg.
- **WET lead** at concentrations greater than the MDL was reported for the 14 of the 15 samples analyzed at concentrations ranging 0.08J to 2.1 mg/l, below the STLC value of 5.0 mg/l.
- **TCLP lead** was not reported for any of the soil samples at concentrations greater than or equal to the MDL of 0.50 mg/l.
- **Soil pH** values in the five soil samples tested ranged from 8.2 to 8.8.
- **Title 22 metals** beryllium, mercury, selenium and thallium were not detected in the five samples analyzed at concentrations above their respective MDL's; antimony, cadmium, and silver had J flagged concentrations. Concentrations of the other Title 22 metals were less than ten times their respective STLCs.
- The equipment blank was reported to contain a lead concentration of 0.001J mg/l which is above the MDL of 0.0008 mg/l but lower than the MDL of the total lead soil samples of 0.04 mg/kg. The equipment blank result is not tabulated.

5.3 Data Validation

Geocon and ATL use QA/QC measures to minimize and control errors associated with field and laboratory methods. Field QA/QC measures consist of cleaning sampling equipment between each use with a detergent solution followed by tap and distilled/purified water rinses. Based on the equipment blank sample analytical result, it appears that the field investigation was free from potential cross-contamination resulting from inadequate equipment decontamination.

Laboratory QA/QC measures include the use of matrix spikes, duplicates, and method blanks, in addition to calculation of percent recovery and relative percentage difference (RPD). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report.

6. FINDINGS AND CONCLUSIONS

6.1 Lead Results

None of the soil samples collected during the investigation exhibited total lead concentrations above the TTLC of 1,000 mg/kg or soluble lead concentrations above the Soluble STLC of 5.0 mg/l. Based on the reported concentrations of total and soluble lead, the upper 2.5 feet of soil may be reused or disposed of as non-hazardous with respect to lead content (Caltrans Type-X).

6.2 Title 22 Metals

Title 22 metals were not reported at or above their respective TTLCs or ten times their respective STLCs. The reported concentrations of metals, with the exception of arsenic, were below their respective CHHSLs for residential and industrial land use.

Arsenic was detected in the soil samples at concentrations ranging from 2.0 to 5.3 mg/kg. These results are greater than the residential and industrial CHHSLs for arsenic of 0.07 mg/kg and 0.24 mg/kg, respectively. Arsenic is a naturally occurring element; therefore, the concentrations were compared to regional background concentrations. The March 2008 DTSC publication *Determination of a Southern California Regional Background Arsenic Concentration in Soil* establishes a regional background for arsenic within Southern California including Los Angeles County using naturally occurring and anthropogenic concentrations of arsenic. The report finds that the upper-bound background concentration for arsenic within Los Angeles County is 12 mg/kg. None of the detected arsenic concentrations exceeded 12 mg/kg, and therefore, the arsenic concentrations are considered to be consistent with background concentrations of arsenic in Los Angeles County.

6.3 pH

Soil pH ranged from 8.2 to 8.8.

6.4 Worker Protection

Per Caltrans' requirements, contractor(s) should prepare a project-specific Lead Compliance Plan to prevent or minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other appropriate health and safety protocols and procedures for the handling of lead-impacted soil.

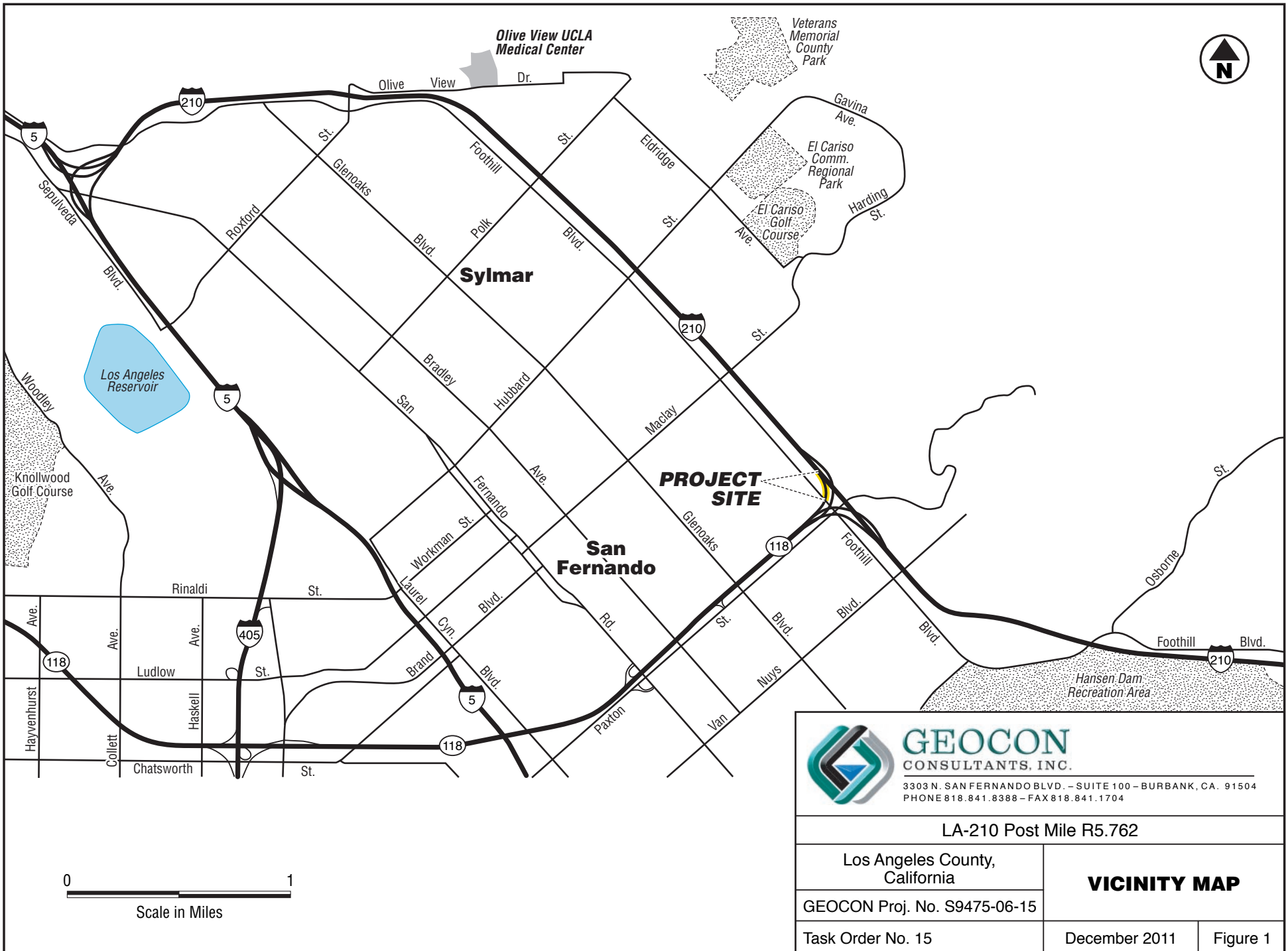
7. REPORT LIMITATIONS

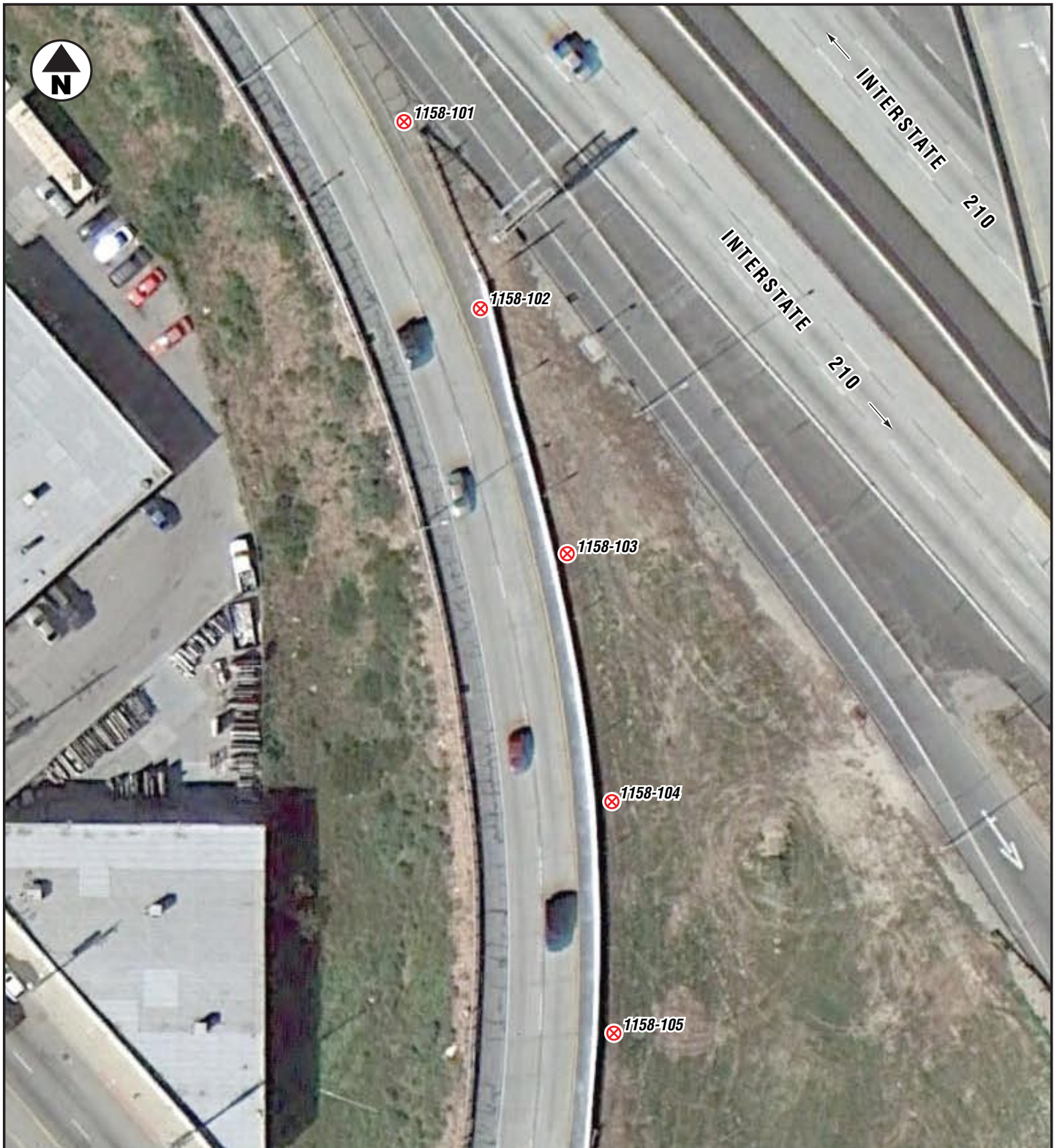
This report has been prepared exclusively for Caltrans. The information obtained is only relevant as of the date of the latest site visit and will require an update to reflect additional information obtained.

The conclusions and recommendations presented herein are based on a limited number of samples collected from in-place soil location according to Caltrans-prescribed protocol. The purpose of these sampling and characterization activities was to reasonably predict the character of soil to be disturbed for planned construction activities within the described limits of the Caltrans right-of-way.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The appropriate regulatory agency may require additional investigations. The findings and conclusions as presented in this report are predicated on the results of the limited soil sampling and laboratory analyses performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the report is implied within the intent of this report or any subsequent reports, correspondence, or consultation, either express or implied. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.





LEGEND:

1158-101 ⊗ Approximate Boring Location

0 50
Scale in Feet



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA. 91504
PHONE 818.841.8388 - FAX 818.841.1704

LA-210 Post Mile R5.762

Los Angeles County,
California

GEOCON Proj. No. S9475-06-15

Task Order No. 15

SITE PLAN

December 2011

Figure 2

TABLE 1
BORING COORDINATES AND SUMMARY OF LEAD AND pH ANALYTICAL RESULTS
STATE ROUTE 210 POST MILE R5.762 ADL INVESTIGATION
LOS ANGELES COUNTY, CALIFORNIA

Sample ID	LONGITUDE	LATITUDE	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	TCLP Lead (mg/l)	pH
1158-101-0.5	-118.40912893	34.28917581	0.0-0.5	9.8	1.2	<0.50	8.8
1158-101-1.5			1.0-1.5	2.3	0.22 J	<0.50	
1158-101-2.5			2.0-2.5	2.1	0.24 J	<0.50	
1158-102-0.5	-118.40904259	34.28900000	0.0-0.5	7.9	0.20 J	<0.50	8.5
1158-102-1.5			1.0-1.5	1.4	0.08 J	<0.50	
1158-102-2.5			2.0-2.5	2.8	<0.06	<0.50	
1158-103-0.5	-118.40895513	34.28877296	0.0-0.5	15	1.5	<0.50	8.4
1158-103-1.5			1.0-1.5	2.1	0.24 J	<0.50	
1158-103-2.5			2.0-2.5	3.4	0.21 J	<0.50	
1158-104-0.5	-118.40890888	34.28854181	0.0-0.5	53	2.1	<0.50	8.2
1158-104-1.5			1.0-1.5	9.2	0.36 J	<0.50	
1158-104-2.5			2.0-2.5	6.9	0.84	<0.50	
1158-105-0.5	-118.40890826	34.28832369	0.0-0.5	12	0.68	<0.50	8.4
1158-105-1.5			1.0-1.5	11	0.65	<0.50	
1158-105-2.5			2.0-2.5	4.8	0.24 J	<0.50	

Notes:

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

WET = Waste Extraction Test

TCLP = Toxicity Characteristic Leaching Procedure

< = Analyte was not detected above the method detection limit

J = Estimated value - concentration is between the method detection limit and the laboratory practical quantitation limit

TABLE 2
SUMMARY OF TITLE 22 METALS ANALYTICAL RESULTS
LOS ANGELES STATE ROUTE 210 POST MILE R5.762 ADL INVESTIGATION
LOS ANGELES COUNTY, CALIFORNIA

Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
1158-101-0.5	0.11 J	2.3	67	<0.04	0.89 J	7.0	3.2	15	9.8	<0.10	2.1	12	<0.13	0.10 J	<0.08	14	52
1158-102-0.5	0.21 J	2.2	90	<0.04	0.71 J	6.8	3.5	15	7.9	<0.10	2.1	13	<0.13	0.03 J	<0.08	14	55
1158-103-0.5	<0.08	2.0	74	<0.04	0.74 J	6.9	4.0	10	15	<0.10	1.5	11	<0.13	0.03 J	<0.08	15	37
1158-104-0.5	<0.08	2.5	72	<0.04	0.57 J	8.4	3.8	11	53	<0.10	1.4	9.7	<0.13	0.07 J	<0.08	15	53
1158-105-0.5	0.09 J	5.3	84	<0.04	0.64 J	12	4.6	16	12	<0.10	2.2	13	<0.13	0.05 J	<0.08	21	67
TTLc	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
10 x STLc	150	500	1,000	7.5	10	50	800	250	50	2.0	3,500	200	10	50	70	240	2,500
CHHSLs	Ind	380	0.24	6,300	190	7.5	10,000	3,200	38,000	320	180	4,800	16,000	4,800	4,800	63	6,700
	Res	30	0.07	5,200	16	1.7	10,000	600	3,000	80	18	380	1,600	380	380	5.0	23,000
Background Concentrations ⁽¹⁾																	
Minimum		0.15	0.6	133	0.25	0.05	23	2.7	9.1	12.4	0.05	0.10	9	0.015	0.1	5.3	88
Maximum		1.95	12	1,400	2.70	1.7	1,579	46.9	96.4	97.1	0.90	9.6	509	0.43	8.3	36.2	236
Mean		0.60	3.5	509	1.28	0.36	122	14.9	28.7	23.9	0.26	1.3	57	0.058	0.8	15.7	149

Notes:

Results shown in milligrams per kilogram (mg/kg)

< = Not detected above the laboratory reporting limit specified

J = Estimated value - concentration is between the method detection limit and the laboratory practical quantitation limit

TTLc = Total Threshold Limit Concentration (in mg/kg)

STLc = Soluble Threshold Limit Concentration

CHHSLs = California Environmental Protection Agency, California Human Health Screening Levels for industrial (Ind) and residential (Res) use

TTLc, STLc, and CHHSLs shown for chromium are for chromium III.

⁽¹⁾ Background Concentrations of Trace and Major Elements in California Soils (in mg/kg)


(Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996)

Maximum arsenic background concentration source - *Determination of a Southern California Regional Background Arsenic Concentration in Soil*, DTSC March 2008

APPENDIX A

December 08, 2011

Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504
Tel: (818) 841-8388
Fax: (818) 841-1704


ACCREDITED IN ACCORDANCE WITH
nelap
ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 1100420
Client Reference : LA-210 PM R5.762, S9475-06-15

Enclosed are the results for sample(s) received on November 30, 2011 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1158-101-0.5	1100420-01	Soil	11/30/11 10:30	11/30/11 14:30
1158-101-0.5	1100420-01	Soil	11/30/11 10:30	11/30/11 14:30
1158-101-0.5	1100420-01	Soil	11/30/11 10:30	11/30/11 14:30
1158-101-1.5	1100420-02	Soil	11/30/11 10:34	11/30/11 14:30
1158-101-1.5	1100420-02	Soil	11/30/11 10:34	11/30/11 14:30
1158-101-2.5	1100420-03	Soil	11/30/11 10:37	11/30/11 14:30
1158-101-2.5	1100420-03	Soil	11/30/11 10:37	11/30/11 14:30
1158-102-0.5	1100420-04	Soil	11/30/11 10:33	11/30/11 14:30
1158-102-0.5	1100420-04	Soil	11/30/11 10:33	11/30/11 14:30
1158-102-0.5	1100420-04	Soil	11/30/11 10:33	11/30/11 14:30
1158-102-1.5	1100420-05	Soil	11/30/11 10:54	11/30/11 14:30
1158-102-1.5	1100420-05	Soil	11/30/11 10:54	11/30/11 14:30
1158-102-2.5	1100420-06	Soil	11/30/11 10:57	11/30/11 14:30
1158-102-2.5	1100420-06	Soil	11/30/11 10:57	11/30/11 14:30
1158-103-0.5	1100420-07	Soil	11/30/11 10:48	11/30/11 14:30
1158-103-0.5	1100420-07	Soil	11/30/11 10:48	11/30/11 14:30
1158-103-0.5	1100420-07	Soil	11/30/11 10:48	11/30/11 14:30
1158-103-1.5	1100420-08	Soil	11/30/11 10:53	11/30/11 14:30
1158-103-1.5	1100420-08	Soil	11/30/11 10:53	11/30/11 14:30
1158-103-2.5	1100420-09	Soil	11/30/11 10:58	11/30/11 14:30
1158-103-2.5	1100420-09	Soil	11/30/11 10:58	11/30/11 14:30
1158-104-0.5	1100420-10	Soil	11/30/11 11:09	11/30/11 14:30
1158-104-0.5	1100420-10	Soil	11/30/11 11:09	11/30/11 14:30
1158-104-0.5	1100420-10	Soil	11/30/11 11:09	11/30/11 14:30
1158-104-1.5	1100420-11	Soil	11/30/11 11:15	11/30/11 14:30
1158-104-1.5	1100420-11	Soil	11/30/11 11:15	11/30/11 14:30
1158-104-2.5	1100420-12	Soil	11/30/11 11:22	11/30/11 14:30
1158-104-2.5	1100420-12	Soil	11/30/11 11:22	11/30/11 14:30
1158-105-0.5	1100420-13	Soil	11/30/11 11:10	11/30/11 14:30
1158-105-0.5	1100420-13	Soil	11/30/11 11:10	11/30/11 14:30
1158-105-0.5	1100420-13	Soil	11/30/11 11:10	11/30/11 14:30
1158-105-1.5	1100420-14	Soil	11/30/11 11:35	11/30/11 14:30
1158-105-1.5	1100420-14	Soil	11/30/11 11:35	11/30/11 14:30
1158-105-2.5	1100420-15	Soil	11/30/11 11:50	11/30/11 14:30
1158-105-2.5	1100420-15	Soil	11/30/11 11:50	11/30/11 14:30



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-101-0.5

Lab ID: 1100420-01

Total Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.11	2.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:01	J
Arsenic	2.3	1.0	0.05	1	B1L0072	12/02/2011	12/02/11 18:01	
Barium	67	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:01	
Beryllium	ND	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:01	
Cadmium	0.89	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:01	J
Chromium	7.0	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:01	
Cobalt	3.2	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:01	
Copper	15	2.0	0.16	1	B1L0072	12/02/2011	12/02/11 18:01	
Lead	9.8	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:01	
Molybdenum	2.1	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:01	
Nickel	12	1.0	0.03	1	B1L0072	12/02/2011	12/02/11 18:01	
Selenium	ND	1.0	0.13	1	B1L0072	12/02/2011	12/02/11 18:01	
Silver	0.10	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:01	J
Thallium	ND	1.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:01	
Vanadium	14	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:01	
Zinc	52	1.0	0.87	1	B1L0072	12/02/2011	12/02/11 18:01	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	1.2	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:27	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:47	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B1L0129	12/05/2011	12/05/11 14:29	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-101-0.5

Lab ID: 1100420-01

pH by EPA 9040B

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.8	0.10	0.10	1	B1L0080	12/02/2011	12/02/11 14:20	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-101-1.5

Lab ID: 1100420-02

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.3	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:37	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.22	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:28	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:48	



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3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-101-2.5

Lab ID: 1100420-03

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.1	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:39	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.24	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:28	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:49	



Geocon Consultants, Inc.

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Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-102-0.5

Lab ID: 1100420-04

Total Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.21	2.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:07	J
Arsenic	2.2	1.0	0.05	1	B1L0072	12/02/2011	12/02/11 18:07	
Barium	90	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:07	
Beryllium	ND	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:07	
Cadmium	0.71	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:07	J
Chromium	6.8	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:07	
Cobalt	3.5	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:07	
Copper	15	2.0	0.16	1	B1L0072	12/02/2011	12/02/11 18:07	
Lead	7.9	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:07	
Molybdenum	2.1	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:07	
Nickel	13	1.0	0.03	1	B1L0072	12/02/2011	12/02/11 18:07	
Selenium	ND	1.0	0.13	1	B1L0072	12/02/2011	12/02/11 18:07	
Silver	0.03	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:07	J
Thallium	ND	1.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:07	
Vanadium	14	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:07	
Zinc	55	1.0	0.87	1	B1L0072	12/02/2011	12/02/11 18:07	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.20	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:28	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:49	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B1L0129	12/05/2011	12/05/11 14:31	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-102-0.5

Lab ID: 1100420-04

pH by EPA 9040B

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.5	0.10	0.10	1	B1L0080	12/02/2011	12/02/11 14:20	



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Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-102-1.5

Lab ID: 1100420-05

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	1.4	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:45	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.08	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:29	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:50	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-102-2.5

Lab ID: 1100420-06

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.8	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:47	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:29	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:50	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-103-0.5

Lab ID: 1100420-07

Total Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:09	
Arsenic	2.0	1.0	0.05	1	B1L0072	12/02/2011	12/02/11 18:09	
Barium	74	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:09	
Beryllium	ND	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:09	
Cadmium	0.74	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:09	J
Chromium	6.9	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:09	
Cobalt	4.0	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:09	
Copper	10	2.0	0.16	1	B1L0072	12/02/2011	12/02/11 18:09	
Lead	15	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:09	
Molybdenum	1.5	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:09	
Nickel	11	1.0	0.03	1	B1L0072	12/02/2011	12/02/11 18:09	
Selenium	ND	1.0	0.13	1	B1L0072	12/02/2011	12/02/11 18:09	
Silver	0.03	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:09	J
Thallium	ND	1.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:09	
Vanadium	15	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:09	
Zinc	37	1.0	0.87	1	B1L0072	12/02/2011	12/02/11 18:09	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	1.5	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:29	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:51	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B1L0129	12/05/2011	12/05/11 14:33	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-103-0.5

Lab ID: 1100420-07

pH by EPA 9040B

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.4	0.10	0.10	1	B1L0080	12/02/2011	12/02/11 14:20	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-103-1.5

Lab ID: 1100420-08

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.1	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:48	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.24	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:29	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:52	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-103-2.5

Lab ID: 1100420-09

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	3.4	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:50	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.21	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:31	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:52	



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3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-104-0.5

Lab ID: 1100420-10

Total Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:12	
Arsenic	2.5	1.0	0.05	1	B1L0072	12/02/2011	12/02/11 18:12	
Barium	72	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:12	
Beryllium	ND	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:12	
Cadmium	0.57	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:12	J
Chromium	8.4	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:12	
Cobalt	3.8	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:12	
Copper	11	2.0	0.16	1	B1L0072	12/02/2011	12/02/11 18:12	
Lead	53	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:12	
Molybdenum	1.4	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:12	
Nickel	9.7	1.0	0.03	1	B1L0072	12/02/2011	12/02/11 18:12	
Selenium	ND	1.0	0.13	1	B1L0072	12/02/2011	12/02/11 18:12	
Silver	0.07	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:12	J
Thallium	ND	1.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:12	
Vanadium	15	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:12	
Zinc	53	1.0	0.87	1	B1L0072	12/02/2011	12/02/11 18:12	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.1	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:31	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:52	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B1L0129	12/05/2011	12/05/11 14:35	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-104-0.5

Lab ID: 1100420-10

pH by EPA 9040B

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.2	0.10	0.10	1	B1L0080	12/02/2011	12/02/11 14:20	



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3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-104-1.5

Lab ID: 1100420-11

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	9.2	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:52	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.36	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:33	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:52	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-104-2.5

Lab ID: 1100420-12

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	6.9	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:54	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.84	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:34	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:53	



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-105-0.5

Lab ID: 1100420-13

Total Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.09	2.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:14	J
Arsenic	5.3	1.0	0.05	1	B1L0072	12/02/2011	12/02/11 18:14	
Barium	84	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:14	
Beryllium	ND	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:14	
Cadmium	0.64	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:14	J
Chromium	12	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:14	
Cobalt	4.6	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:14	
Copper	16	2.0	0.16	1	B1L0072	12/02/2011	12/02/11 18:14	
Lead	12	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:14	
Molybdenum	2.2	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:14	
Nickel	13	1.0	0.03	1	B1L0072	12/02/2011	12/02/11 18:14	
Selenium	ND	1.0	0.13	1	B1L0072	12/02/2011	12/02/11 18:14	
Silver	0.05	1.0	0.02	1	B1L0072	12/02/2011	12/02/11 18:14	J
Thallium	ND	1.0	0.08	1	B1L0072	12/02/2011	12/02/11 18:14	
Vanadium	21	1.0	0.04	1	B1L0072	12/02/2011	12/02/11 18:14	
Zinc	67	1.0	0.87	1	B1L0072	12/02/2011	12/02/11 18:14	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.68	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:34	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:53	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	NA	1	B1L0129	12/05/2011	12/05/11 14:25	



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3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-105-0.5

Lab ID: 1100420-13

pH by EPA 9040B

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.4	0.10	0.10	1	B1L0080	12/02/2011	12/02/11 14:20	



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Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-105-1.5

Lab ID: 1100420-14

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	11	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:56	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.65	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:34	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:53	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Client Sample ID 1158-105-2.5

Lab ID: 1100420-15

Lead by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	4.8	1.0	0.13	1	B1L0020	12/01/2011	12/02/11 12:58	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.24	0.50	0.06	1	B1L0091	12/03/2011	12/05/11 13:36	J

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.50	NA	1	B1L0067	12/02/2011	12/05/11 11:54	



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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

QUALITY CONTROL SECTION

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0072 - EPA 3050B

Blank (B1L0072-BLK1)

Prepared: 12/2/2011 Analyzed: 12/2/2011

Antimony	ND	2.0			NR				
Arsenic	0.09	1.0			NR				J
Barium	0.10	1.0			NR				J
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	0.11	1.0			NR				J
Cobalt	ND	1.0			NR				
Copper	0.18	2.0			NR				J
Lead	0.07	1.0			NR				J
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	0.35	1.0			NR				J
Silver	0.03	1.0			NR				J
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				

LCS (B1L0072-BS1)

Prepared: 12/2/2011 Analyzed: 12/2/2011

Antimony	46	2.0	50.0		92.1	80 - 120
Arsenic	47	1.0	50.0		93.2	80 - 120
Barium	49	1.0	50.0		97.4	80 - 120
Beryllium	48	1.0	50.0		96.4	80 - 120
Cadmium	46	1.0	50.0		92.5	80 - 120
Chromium	47	1.0	50.0		94.4	80 - 120
Cobalt	47	1.0	50.0		93.6	80 - 120
Copper	49	2.0	50.0		97.7	80 - 120
Lead	49	1.0	50.0		97.2	80 - 120
Molybdenum	50	1.0	50.0		100	80 - 120
Nickel	46	1.0	50.0		92.9	80 - 120
Selenium	45	1.0	50.0		90.0	80 - 120
Silver	47	1.0	50.0		94.4	80 - 120
Thallium	49	1.0	50.0		97.5	80 - 120
Vanadium	49	1.0	50.0		98.2	80 - 120
Zinc	47	1.0	50.0		93.8	80 - 120

Matrix Spike (B1L0072-MS1)

Source: 1100420-13

Prepared: 12/2/2011 Analyzed: 12/2/2011

Antimony	96	2.0	125	0.09	76.7	44 - 105
Arsenic	110	1.0	125	5.3	81.5	57 - 103
Barium	180	1.0	125	84	78.9	36 - 134
Beryllium	110	1.0	125	ND	84.1	64 - 106



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Total Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0072 - EPA 3050B (continued)

Matrix Spike (B1L0072-MS1) - Continued

Source: 1100420-13

Prepared: 12/2/2011 Analyzed: 12/2/2011

Cadmium	98	1.0	125	0.64	78.1	58 - 102
Chromium	110	1.0	125	12	79.6	55 - 105
Cobalt	100	1.0	125	4.6	80.1	59 - 105
Copper	130	2.0	125	16	88.6	64 - 117
Lead	110	1.0	125	12	80.6	46 - 116
Molybdenum	110	1.0	125	2.2	84.8	59 - 108
Nickel	110	1.0	125	13	77.6	52 - 109
Selenium	99	1.0	125	ND	79.5	56 - 100
Silver	110	1.0	125	0.05	86.4	65 - 107
Thallium	100	1.0	125	ND	81.0	47 - 100
Vanadium	130	1.0	125	21	85.3	64 - 110
Zinc	160	1.0	125	67	76.7	37 - 123

Matrix Spike Dup (B1L0072-MSD1)

Source: 1100420-13

Prepared: 12/2/2011 Analyzed: 12/2/2011

Antimony	96	2.0	125	0.09	76.8	44 - 105	0.0105	20
Arsenic	110	1.0	125	5.3	80.5	57 - 103	1.17	20
Barium	170	1.0	125	84	68.5	36 - 134	7.38	20
Beryllium	110	1.0	125	ND	84.5	64 - 106	0.439	20
Cadmium	96	1.0	125	0.64	76.4	58 - 102	2.25	20
Chromium	110	1.0	125	12	77.6	55 - 105	2.35	20
Cobalt	100	1.0	125	4.6	78.2	59 - 105	2.36	20
Copper	120	2.0	125	16	83.1	64 - 117	5.61	20
Lead	110	1.0	125	12	81.0	46 - 116	0.473	20
Molybdenum	110	1.0	125	2.2	84.2	59 - 108	0.667	20
Nickel	110	1.0	125	13	75.0	52 - 109	2.93	20
Selenium	100	1.0	125	ND	79.6	56 - 100	0.123	20
Silver	110	1.0	125	0.05	84.3	65 - 107	2.44	20
Thallium	100	1.0	125	ND	81.7	47 - 100	0.821	20
Vanadium	120	1.0	125	21	82.0	64 - 110	3.26	20
Zinc	150	1.0	125	67	66.5	37 - 123	8.24	20



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0020 - EPA 3050 Modified

Blank (B1L0020-BLK1)

Prepared: 12/1/2011 Analyzed: 12/2/2011

Lead	ND	1.0			NR				
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LCS (B1L0020-BS1)

Prepared: 12/1/2011 Analyzed: 12/2/2011

Lead	270	1.0	250		108	80 - 120			
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Duplicate (B1L0020-DUP1)

Source: 1100420-15

Prepared: 12/1/2011 Analyzed: 12/2/2011

Lead	3.8	1.0		4.8	NR		22.4	20	R
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Matrix Spike (B1L0020-MS1)

Source: 1100420-15

Prepared: 12/1/2011 Analyzed: 12/2/2011

Lead	200	1.0	250	4.8	77.2	46 - 116			
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Matrix Spike Dup (B1L0020-MSD1)

Source: 1100420-15

Prepared: 12/1/2011 Analyzed: 12/2/2011

Lead	200	1.0	250	4.8	76.5	46 - 116	0.925	20	
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Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

STLC Lead by AA (Direct Aspiration) by EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0091 - STLC Extraction

LCS (B1L0091-BS1)

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	5.1	0.05	5.00	102	80 - 120
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Duplicate (B1L0091-DUP1)

Source: 1100420-10

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	2.3	0.50	2.1	NR	8.55	20
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Duplicate (B1L0091-DUP2)

Source: 1100420-15

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	0.19	0.50	0.24	NR	23.6	20	R, J
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Matrix Spike (B1L0091-MS1)

Source: 1100420-10

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	6.6	0.05	5.00	2.1	90.8	80 - 120
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Matrix Spike (B1L0091-MS2)

Source: 1100420-15

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	4.9	0.05	5.00	0.24	93.4	80 - 120
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Matrix Spike Dup (B1L0091-MSD1)

Source: 1100420-10

Prepared: 12/3/2011 Analyzed: 12/5/2011

Lead	6.5	0.05	5.00	2.1	88.7	80 - 120	1.59	20
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Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

TCLP Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0067 - EPA 3010A

Blank (B1L0067-BLK3)

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	ND	0.50			NR				
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Blank (B1L0067-BLK4)

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	ND	0.50			NR				
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Duplicate (B1L0067-DUP2)

Source: 1100420-02

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	0.12	0.50		0.08	NR		45.2	20	R
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Matrix Spike (B1L0067-MS2)

Source: 1100420-02

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	2.9	0.50	2.50	0.08	113	80 - 120			
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Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Mercury by AA (Cold Vapor) EPA 7471 - Quality Control

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0129 - EPA 7471

Blank (B1L0129-BLK1)

Prepared: 12/5/2011 Analyzed: 12/5/2011

Mercury ND 0.10 NR

LCS (B1L0129-BS1)

Prepared: 12/5/2011 Analyzed: 12/5/2011

Mercury 0.79 0.10 0.833 94.3 80 - 120

Duplicate (B1L0129-DUP1)

Source: 1100420-13

Prepared: 12/5/2011 Analyzed: 12/5/2011

Mercury 0.03 0.10 0.03 NR 1.16 20

Matrix Spike (B1L0129-MS1)

Source: 1100420-13

Prepared: 12/5/2011 Analyzed: 12/5/2011

Mercury 0.83 0.10 0.833 0.03 96.2 70 - 130

Matrix Spike Dup (B1L0129-MSD1)

Source: 1100420-13

Prepared: 12/5/2011 Analyzed: 12/5/2011

Mercury 0.76 0.10 0.833 0.03 88.3 70 - 130 8.27 20



Geocon Consultants, Inc.

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Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

pH by EPA 9040B - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B1L0080 - Prep_WC_1_S

Duplicate (B1L0080-DUP1)

Source: 1100420-13

Prepared: 12/2/2011 Analyzed: 12/2/2011

pH	8.5	0.10		8.4	NR		0.2	20	
----	-----	------	--	-----	----	--	-----	----	--



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/08/2011

Notes and Definitions


R	RPD value outside acceptance criteria. Calculation is based on raw values.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Page 1 of 1

[illegible]

December 05, 2011

Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504
Tel: (818) 841-8388
Fax: (818) 841-1704


ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 1100422
Client Reference : LA-210 PM R5.762, S9475-06-15

Enclosed are the results for sample(s) received on November 30, 2011 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/05/2011

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1158-100-1	1100422-01	Water	11/30/11 12:12	11/30/11 14:30



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank, CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/05/2011

Client Sample ID 1158-100-1

Lab ID: 1100422-01

Lead by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.001	0.005	0.0008	1	B1L0065	12/02/2011	12/05/11 15:35	J

QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B1L0065 - EPA 3010A

Blank (B1L0065-BLK1)

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	ND	0.005		NR
------	----	-------	--	----

LCS (B1L0065-BS1)

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	1.009	0.005	1.00	101	85 - 115
------	-------	-------	------	-----	----------

Matrix Spike (B1L0065-MS1)

Source: 1100422-01

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	2.667	0.005	2.50	0.001312	107	78 - 117
------	-------	-------	------	----------	-----	----------

Matrix Spike Dup (B1L0065-MSD1)

Source: 1100422-01

Prepared: 12/2/2011 Analyzed: 12/5/2011

Lead	2.490	0.005	2.50	0.001312	99.5	78 - 117	6.87	20
------	-------	-------	------	----------	------	----------	------	----



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : LA-210 PM R5.762, S9475-06-15

Report To : Mike Conkle

Reported : 12/05/2011

Notes and Definitions

J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

[illegible]

HEALTH AND SAFETY PLAN

SITE INVESTIGATION

LA-210 POST MILE R5.762
LOS ANGELES COUNTY, CALIFORNIA



GEOCON
CONSULTANTS, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED BY

GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA 91504

PROJECT NO. S9475-06-15
CALTRANS CONTRACT NO. 07A2729
TASK ORDER NO. 15
EA NO. 07-4T3701

NOVEMBER 2011

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Attachment A - T8 CCR §1532.1 Lead - Appendix A

Figure 1 – Vicinity Map

HEALTH AND SAFETY PLAN SUMMARY

Site Location/Address: **State Route 210, Post Mile R5.762
Los Angeles County, California**

Project Representatives:

- Project Manager/Cell No.: **Mike Conkle (213) 503-7841**
- Site Safety Officer/Cell No.: **Cesar Larios (818) 298-5790**
Geocon Office Number (818) 841-8388
- Geocon Consulting CIH: **Doug Krause (530) 758-6397**
Cell No.: (530) 848.9232
- Caltrans TO Manager: **Sameer Khaitan (213) 897-0458**

Scope:

- General survey/non-intrusive activities
- Soil sampling (hand-auger)

Hazard Summary:

- Mechanical - material handling, slip/trip, struck-by injuries
- Underground and Overhead Utilities
- Noise – road traffic
- Biological - bites or stings
- Chemical – aerially deposited lead (ADL)

Control Summary:

- Personal Protection Equipment (PPE) – ANSI Class II safety vests, hard hats, safety glasses, steel-toed boots
- Site Control - utility location/identification
- Hearing protection – ear plugs/muffs
- Site inspection & awareness; repellent, wasp spray
- Engineering Controls/Isolation/PPE - safe (wet) sampling methods & work practices; protective gloves; sanitation.

**Hospital Reference: Olive View UCLA Medical Center
14445 Olive View Dr. Sylmar, CA 91342
(818) 364-1555**

Directions: Take State Route 210 west for 2.5 miles. Take exit #2 Roxford St/Sylmar and turn right onto Roxford Street. Bear right onto Olive View Drive (see Vicinity Map, Figure 1).

Emergency Assistance:

Fire/Police/Medical Assistance: **911**
Poison Control: **800-876-4766**

1.0 INTRODUCTION

This Health and Safety Plan (HSP) is a compilation of health and safety guidelines, policies and/or performance protocols that, when exercised, are intended to reduce or eliminate the potential for injury and exposure during the performance of the activities at the site described below. Conformance with its contents does not warrant that injuries or exposures will not occur.

This HSP is not a training tool and does not contain the degree of detail necessary to train an employee on the appropriate performance, approach and/or equipment-use protocols referenced, herein. It will be assumed that persons working on this project and referring to this HSP meet the minimum training requirements described later, herein.

This HSP has been prepared to specifically support the field activities described herein. The provisions described herein apply to employees of Geocon Consultants, Inc. (Geocon) and its subcontractors, only. Representatives of the Client, Client-retained subcontractors, and representatives of state or local government agencies are expected to observe the safety rules and requirements established by their respective organizations, provided they do not conflict with this HSP, but will not be responsible for enforcing the conditions of this HSP on these representatives.

The contents of this HSP are based on factors and conditions understood prior to the start of the field activities. If those factors and conditions change during the performance of the activities, including the service scope, or if conditions exist that were not considered in the preparation of this HSP, then such shall be brought to the immediate attention of the person approving this HSP, and the HSP shall be modified, accordingly.

A copy of the Plan will be provided to all subcontractors and Caltrans or designee involved with project activities. All project personnel, including Caltrans field inspectors will review, and become familiar with the elements of the Plan prior to site work and acknowledge such by signing the last page of this HSP

A pre-job conference will be held to delineate roles and responsibilities, discuss key elements of the Plan, and coordinate activities. This Plan is a "working document" to be used by affected personnel. The Plan may be modified at any time in accordance with Section 1.4 to adequately address changing conditions or previously unrecognized exposure hazards which may be encountered during the project.

The Plan will be updated at least every six months and a current copy of the Plan will be maintained at the project site and be available to all affected personnel. The date indicated in the lower right-hand corner of this document indicates the latest version of this Plan.

1.1 Project Location and Description

Site Location: State Route 210, Post Mile (PM) R5.762, Los Angeles County, California

1.2 Background

Caltrans proposes to install concrete barrier, improve pavement friction coefficient and upgrade the lighting system along the southbound State Route 210 connector to the westbound SR-118.

Aerially deposited lead (ADL) may be present on the site, primarily due to historic leaded fuel emissions from automobile exhausts.

1.3 Project Objectives

The purpose of the scope of services is to evaluate whether ADL soil are present at the site at regulated levels. The site investigation can also be used for recommendations on appropriate handling procedures for handling and disposing of soil generated during excavation activities.

1.4 Planned Scope of Services

- Soil Sampling (hand-auger)

1.5 Schedule

Anticipated Period of Performance: December 2011

Anticipated Weather/Temperature: Moderate to cold

2.0 ADMINISTRATIVE REQUIREMENTS/CONTROLS

2.1 Personnel

Personnel responsible for project safety include the Project Manager (PM), Site Safety Officer (SSO), the Consulting Certified Industrial Hygienist (CIH), and participating project personnel.

2.1.1 Project Manager

The Project Manager has ultimate authority and responsibility for project Health and Safety. Accordingly, he/she has the responsibility to develop the HSP (or assign its development); audit compliance with the provisions of this HSP; suspend project activities or modify service practices for health and safety reasons, and; to dismiss from a project site individuals whose onsite conduct either endangers the health and/or safety of others or is judged not to comply with the provisions of the HSP. The Project Manager is responsible for sharing/distributing the HSP to participating field personnel and to an authorized representative of each project subcontractor. The Project Manager is also responsible for implementing all provisions of the HSP and any applicable addenda. Implementation includes:

- A review of the HSP requirements (if prepared by another project member);
- An overview presentation of the provisions of the HSP with project participants;
- The provision of the safety equipment specified herein;
- The collection and submittal of the requisite health and safety documentation (training rosters/certificates, site personnel logs, medical releases) and copying them to the SSO, if appropriate;

Note: Air monitoring and exposure assessment records will be maintained in accordance with the provisions of T8 CCR §3204, Access to Employee Exposure and Medical Records as well as requirements in T8 CCR §1532.1 – Lead.

- The designation/identification of a qualified project member as the SSO; and
- Reporting Plan amendments to the Consulting CIH.

2.1.2 Site Safety Officer

The designated SSO is responsible for assisting the Project Manager with onsite implementation of the HSP. The SSO's responsibilities include:

- Maintaining project safety equipment supplies;
- Performing air monitoring, if and as specified herein (ref: T8 CCR §1532.1(d) Lead Exposure Assessment);
- Directing decontamination operations, as appropriate;
- First line enforcement of the provisions of this HSP;
- Directing emergency response operations until public emergency personnel arrive,
- Setting up Site Controls, if and as specified herein; and
- Reporting all incidents and infractions to the Project Manager and Consulting CIH.

The SSO has the authority to suspend project activities any time he/she determines that the provisions of the HSP are inadequate to provide a service/project environment conducive to employee safety. Further, the SSO is to inform the Project Manager of any previously unrecognized conditions that may jeopardize the health and safety of project staff or others.

2.1.3 Geocon Certified Industrial Hygienist

The Consulting CIH provides industrial hygiene and safety technical support to the Project Manager and Site Safety Officer (SSO). In this capacity, the CIH:

- Provides training, as requested;
- Approves or recommends airborne sampling strategies and monitoring equipment;
- Provides technical support for the selection and use of Personal Protective Equipment (PPE); and,
- Provides arbitration on project health and safety issues.

2.1.4 Project Field Staff

All project personnel are responsible for:

- Complying with the provisions of this HSP;
- Performing services in a manner that is consistent with good health and safety practice; and
- Reading and being knowledgeable of the contents of this HSP.

2.2 Personnel Training

2.2.1 General Site Employees

Site employees will attend a project orientation prior to starting the project. The orientation will review all elements of the HSP, including: 1) the location of potential health and safety hazards on the site and 2) requirements of the HSP. The training will also address other Cal/OSHA requirements such as the Geocon Hazard Communication Program (T8 CCR §5194), including the potential hazards of exposure to lead (T8 CCR §1532.1(l)) and the Injury and Illness Prevention Program (T8 CCR §3203).

2.2.2 "Tailgate" Meetings

During the active field components of the project, the Project Manager or designee will conduct regular (i.e., weekly or daily, as appropriate) "tailgate" safety meetings. This meeting will include information on the following subjects, as applicable:

- Changes to project scope;
- Recognized changes to site conditions;
- Review of safe work practices;
- On or off the project safety practices;
- Feedback from employees on hazards, safety suggestions, or concerns; and
- Recognition for compliance, good safety performance or attitude.

Attendance at the tailgate meetings is considered a part of each employee's job responsibilities.

2.3 Medical Surveillance

Based on Negative Exposure Assessments from industrial hygiene monitoring for airborne inorganic lead performed for representative tasks, using similar controls, and carried out within the past twelve months (ref. T8 CCR §1532.1(d)(5)(A)), medical surveillance is not mandate for these tasks nor is respiratory protective equipment required for this project.

Therefore, additional exposure assessments will not be required and Medical Surveillance as specified under T8 CCR §1532.1 is not required or justified for personnel assigned to this project.

Geocon and subcontractor employees required to wear respiratory protection shall have a current medical evaluation and approval by a physician or other licensed health care professional (PLHCP). Medical evaluations will be provided in accordance with the Geocon Respiratory Protective Equipment Program (ref. T8 CCR §5144(e) "Medical Evaluation").

Project personnel are to arrive at the jobsite well rested and physically prepared to perform assigned tasks.

3.0 HAZARD AND CONTROL ANALYSIS

The following hazards were assessed to either exist, or have the potential to develop, during the performance of the project activities:

TASKS	HAZARDS							
	MECHANICAL	ELECTRICAL/ UTILITY	NOISE	BIOLOGICAL	RADIOLOGICAL	THERMAL	CHEMICAL	OTHER
Driving	X							
Soil sampling	X	X	X	X			X	

3.1 Safe Driving

Hundreds of workers are injured or die in job-related motor vehicle accidents annually. Motor vehicle accidents are one of the number-one causes of employee injuries and deaths. Most accidents can be avoided by practicing defensive driving. Geocon policies mandate that employees:

- Prepare themselves and their vehicle for the road before travel;
- Drive according to posted speed limits unless adverse conditions necessitate slower speeds;
- Never tailgate, employ the three (3) second rule in following vehicles;
- Follow California State Law and other local laws and regulations regarding the use of cellular phones for communication while driving;
- Additionally, talking on a cell phone and/or texting is prohibited while working near drill rigs or operating sampling equipment; and,
- Use practical driving procedures in cities, on the freeway, and in rural areas.

3.2 Mechanical Hazards

Type(s)/Source:

- Material Handling/Back Injury

- Striking (slips, trips); and
- Struck-by injuries

Qualified Exposure Risk: Moderate

Hazard Control(s):

- Safe Lifting
- Isolation - shoulder closure traffic control/work methods/no work during inclement weather or darkness
- PPE – ANSI safety vests; hard hats; safety-toe shoe or boot; safety glasses

3.2.1 Material Handling/Back Injury

Hazard: It is expected that field personnel will be required to lift heavy equipment and supplies and/or perform arduous tasks during this project. Accordingly, back injuries or physical strain may be caused by: routine lifting or one-time-only lifting; the weight of a lifted object; the frequency of lifting; bending, twisting, or rotating during lifting; prolonged sitting; exposure to vibrations; poor arch support in shoes; and, not stretching prior to physical activity. If the following “control” mechanisms are not exercised, debilitating back injury may occur.

Control(s): Before attempting to lift and carry an object, always test its weight first. If it is too heavy, get help. If possible, use mechanical lifting aids. If manageable, the proper method for lifting is:

- Get a good footing;
- Place feet about shoulder width apart;
- Bend knees to pick up load. Never bend from the waist;
- Keep back straight;
- Get a firm hold. Grasp opposite corners of the load, if possible;
- Keep the back as upright as possible;
- Lift gradually by straightening the legs - don't jerk the load;
- Keep the weight as close to the body as possible; and
- When changing directions, turn the entire body, including the feet. Don't twist the body.

If devices are used for handling materials manually (e.g., two-handed lifters, barrel ring clamps, hand trucks, wheelbarrows, etc.), wear protective equipment like gloves and safety shoes to minimize the potential of appendages becoming pinched or smashed between the load and stationary features. Also, avoid overloading the device.

3.2.2 "Striking" Injuries

Hazard: Injuries can, and often, result when a person (a kinetic mass) unexpectedly instigates contact with another kinetic mass. These occurrences typically result from inadvertent slips, trips and falls.

Control(s): To minimize risks of "slip/trip" hazards, personnel shall maintain a constant program of good housekeeping, keeping areas clear of trip hazards and wet and slippery surfaces. All hand tools shall be regularly secured and care shall be taken when entering areas where work is being performed above eye level.

3.2.3 "Struck-by" Injuries

Hazard: Injuries can, and often, result when workers are the unexpected receptor of contact with another kinetic mass. These occurrences typically result from the worker being struck by a dropped or collapsed mass, a moving piece of equipment, or more likely a moving vehicle.

Control(s): Engage the vehicle's warning light bar whenever planning to pull off or exit the highway. When stopped or parked, continue use of the light bar. Employees/workers shall not exit the vehicle until they have successfully pulled off of the highway. In those instances where it is not possible to clear the shoulder, workers shall exit the vehicle on the side opposite the adjacent traffic flow. Geocon employees will be required to wear hard hats and fluorescent vests and place safety cones at 10-yard intervals for a minimum of 30 yards (if achievable) from the left rear corner of the vehicle so they may be seen by adjacent traffic.

If shoulder and/or lane closure is required to perform the services, it shall be provided in conformance with Caltrans' *Standard Provisions for Maintaining Traffic* as specified in *Standard Plans T-10, T-10A, T-11, T-12, T-13, and T-14*.

Workers shall maintain a constant awareness of traffic patterns/conditions throughout the duration of the field services.

3.3 Underground Utility Hazards

Type(s)/Source:	Water, sewer, electric, fiber optic, gas, or fuel
Potential Hazards:	Flooding, shock or electrocution, fire or explosion
Qualified Exposure Risk:	Low – Hand-auger sampling
Hazard Controls:	Site control, isolation, and third-party inspection, i.e., independent utility locator

Demarcate all drilling/digging locations, first. Contact Underground Service Alert (USA) (1-800-227-2600) and review as-built plans before performing any excavation/drilling/coring activity. It is advised that a private utility locator be contacted to supplement USA's demarcations, especially when the project is on private property. Soil intrusive work shall not proceed until all locating activities have

been completed and fully documented in the site records. The initial site safety orientation meeting for all personnel onsite shall include a review of the underground utility locations and the location of the site map, showing the position of any underground utility lines. The site safety orientation shall include a site walkover of each marked utility or line.

Should a sub-surface condition be encountered that creates suspicion that there may be an unidentified underground line or utility, immediately cease work and secure the equipment. Work will not proceed until the potential risk or condition is resolved.

3.4 Noise Hazards

Equipment operated at sampling sites may present a noise hazard to employees. In all cases where the sound pressure levels may exceed a time-weighted average noise dose of 85 decibels (the Action Level), the Project Manager will evaluate exposures according to the Geocon Hearing Conservation Program (ref. T8 CCR §§5095-5100). Selection of hearing protection will be made in accordance with the Geocon Safety Equipment Guide. Only hearing protectors (ear plugs or muffs) with a Noise Reduction Rating of 20 dB, or higher, will be used. When worn, earmuffs will be donned in the "over the head" position with the hair pulled back from the sealing surface.

Note: In general, noise levels in excess of 85 dBA interfere with communication between two individuals speaking in a normal tone of voice at a distance of 3 feet from one another.

3.5 Biological Hazards –Biting Insects (Vectors) & Animals

Qualified Exposure Risk: Low

Hazard Controls:

- Isolation (Attention to detail – avoidance)
- PPE (Gloves/boots/long-sleeve shirts)
- Wear long-sleeve shirts, long pants, and high top stockings
- Repellent, wasp spray, pepper spray

Hazard: Contact with plants, insects, and animals likely to be present at the site should be avoided. Plants (such as poison oak or ivy) can cause an allergic reaction and skin rash in some individuals. Stinging and biting insects, including bees, spiders, and ticks, can cause extreme discomfort and/or serious allergic responses. Insect bites are generally not dangerous, unless they are from a poisonous insect or mosquitoes potentially carrying West Nile virus.

The primary concern with animal bites and scratches is the potential for infection and/or rabies. Snake or scorpion bites can also be dangerous, but more from infection or trauma than the toxins injected by the snake or scorpion.

Control(s): Avoid conducting site activities from dusk to dawn when the risk of encountering biting mosquitoes is higher. Before beginning fieldwork each day, inspect the work area for the presence of standing water, poisonous plants and inhabitant reptiles, and take measures necessary to minimize the potential for contact. Specially prepared topical barriers, such as Teknu®, for protection against poison oak, and insect repellent containing approximately 50% DEET for protecting exposed skin from biting insects; the more DEET a repellent contains the longer time it can provide protection from mosquito bites. Apply insect repellent sparingly to exposed skin. These products are commercially available and may minimize the potential for development of skin rashes and/or irritations due to such exposures. If unprotected contact with potentially poisonous plants does exist, wash with soap and water as soon as possible. If irritation still develops, apply First Aid and/or seek medical attention, accordingly. If you are allergic to bee or wasp stings, be sure to have the appropriate first aid available (e.g., an epi-pen) on the project. If you are stung, administer first aid and seek immediate medical attention.

Be sure a reptile or animal bite victim obtains medical attention quickly if a bite or scratch occurs, especially if there is a potential that it was poisonous. In the meantime, administer First Aid by scrubbing the wound with soap and water, and rinsing thoroughly under running water. Dry off and place a clean bandage on the wound. Victims of these bites should lie down and remain calm and motionless; cold packs should be applied and medical attention sought immediately.

3.6 Chemical Hazards – Inorganic Lead

The risk of significant exposure to aurally deposited inorganic lead in soils is considered to be low while performing characterization tasks required on this project. Sampling methods and work practices to be employed, as well as damp soil conditions, which are common in the area during the winter season, will reduce the potential for significant exposures to airborne lead or other contaminants.

Detailed information regarding the physical description of inorganic lead, including health hazards, routes of entry into the body, signs and symptoms of exposure, and target organs, published exposure limits (PEL- TWA and Action Level) is available in Attachment A – Lead, which is the Substance Information Sheet referenced in T8 CCR §1532.1 .

Types/Source: Aerially deposited inorganic lead (ADL)
Exposure Routes: Inhalation and ingestion;
ref. Attachment A - T8 CCR §1532.1 Lead - Appendix A

Qualified Exposure Risk: Low, due to wet or moist soil conditions

Primary “Control”:

- Site Control – formal work zones will be established around drilling operations (ref. Section 4.2)
- T8 CCR §5145 Media for Allaying Dusts (wet methods) and adherence to safe work practices, and specific sampling methods and procedures

Negative Exposure Assessment: Results of industrial hygiene monitoring of representative tasks and sampling procedures for aerially deposited lead impacted shallow soils using wet controls document exposures consistently below the 30 $\mu\text{g}/\text{m}^3$ Action Level for airborne inorganic lead (ref. T8 CCR §1532.1(d)(5)(A))

- Avoid contact with, and inhalation of, airborne contaminated soil/dust.
- PPE (Gloves/glasses)
- Follow good personal hygiene practices (see Section 4.2).

CHEMICAL NAME AND CAS#	ROUTES OF ENTRY	PUBLISHED EXPOSURE LIMITS		
		CATEGORY	CONCENTRATION	SOURCE
Lead, Elemental & Inorganic Compounds 7439-92-1	Inhalation	PEL-TWA	0.05 mg/m^3	Cal/OSHA
	Ingestion	Action Limit	0.03 mg/m^3	

4.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

4.1 Air Monitoring

Industrial hygiene monitoring will not be performed for the inorganic lead sampling tasks being carried out for this project. Based on Negative Exposure Assessments for inorganic lead while performing similar sampling and characterization activities carried out within the past twelve months, the airborne levels were well below the Cal/OSHA Action Level for airborne lead of 30 micrograms per cubic meter of air (30 $\mu\text{g}/\text{m}^3$) (ref. T8 CCR §1532.1(d)(5)(A)).

4.2 Personal Hygiene

The SSO will establish hand-wash facilities, including clean water, hand soap, waterless hand cleaner, sanitary wipes and clean towels at the project site. All Geocon personnel, subcontractor employees, and Caltrans field inspectors and engineers leaving the project site (work zones) will clean potential impacted soils from their footwear and wash hands prior to leaving the project site (ref. T8 CCR §1527(a)(2)). In addition, the following procedures will be followed to ensure worker protection against potential exposure through ingestion:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-in-mouth transfer and ingestion of material is prohibited in any area designated as being potentially impacted.
- Hands and face must be thoroughly washed upon leaving the work area, and before eating, drinking, or other non-project activities.
- Avoid unnecessary kneeling, sitting, leaning, or general contact with potentially impacted surfaces or with surfaces suspected of being potentially impacted by hazardous materials (i.e., puddles, mud, leachate, etc.).

- Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Personnel should take neither if the likelihood of such potentiation exists. Being under the influence of alcohol during the field activities is prohibited.

4.3 Buddy System

Project personnel are to work with another person when performing sampling tasks; the client or a subcontractor's representative can serve as the second person while the work is being conducted in the field. Under no circumstances, other than completion of paper work at the end of the day, are field personnel to work alone at the site.

4.4 Work Zone Controls

With exception to the traffic controls discussed in Section 3.3.3, formal work, as referenced above, although airborne concentrations of lead are not anticipated to exceed the 30 $\mu\text{g}/\text{m}^3$ Action Level, nevertheless, work zones (Exclusion and Support) will be established for this project to minimize risk to non-project personnel and the public. Conventional construction signs, barricades and caution tape shall be utilized to control access and egress of project workers from potential lead impacted areas (zones), maintain security, and prevent access to the project site from the public.

4.5 Code of Safe Practices

General safe work practices to be utilized by all project personnel are summarized below:

- All nonessential personnel will be kept clear of work areas.
- Adequate signs and safety devices will be installed on equipment.
- The use of entertainment and personal communication devices in the work zone shall not be allowed.
- All site employees will wear assigned personal protective equipment and level of protection as designated by the Site Safety Officer.
- Eating, drinking, smoking, chewing gum or tobacco, or application of cosmetics is allowed in designated areas only.
- At a minimum, all personnel will wash with soap and water before lunch, using the restroom, and at the end of work. The face and hands shall be washed before eating, drinking, smoking, chewing gum, applying cosmetics, etc.
- Over-the-counter drugs and prescription medications must be reported to the Site Safety Officer for clearance before an employee is allowed to work near drill rig or other heavy equipment.
- When portable electric tools and equipment are used, three-wire extension cords are required.
- Employees will advise their supervisors of any malfunctioning equipment immediately.
- An ongoing safety maintenance program for tools and equipment will be instituted. Inspections will occur on a regular basis to ensure parts are secure and intact. Defective equipment will be repaired or replaced.

- Appropriate engineering controls and equipment guards will be installed on tools and equipment. This includes seat belts & backup warning lights and signals.
- A list of names of personnel who are trained in CPR and first aid shall be available.
- Labels shall be placed on containers of hazardous materials.
- No one will work alone; the "buddy system" shall be implemented for all field work.
- Employees shall be trained to identify effects and symptoms of toxic exposure and report them immediately.
- Under no circumstances are Geocon personnel authorized to enter a confined space.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The employment of the engineering controls is the preferred method of providing personal protection from hazards identified at this and any site. PPE provides acceptable secondary recourse, but only when engineering controls fail or cannot adequately eliminate exposure to the hazard. The use of PPE is intended to provide protection for onsite personnel from operational hazards that cannot be controlled through other safety procedures or work practices.

PPE required to be onsite for each worker during this project will include:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Hard Hat (without face Shield) | <input checked="" type="checkbox"/> Safety Glasses |
| <input checked="" type="checkbox"/> Leather Safety Toe Boots/Shoe | <input checked="" type="checkbox"/> Disposable inner gloves (for sample handling) |
| <input checked="" type="checkbox"/> Chem. Resistant Boots | <input checked="" type="checkbox"/> Chem. Resistant gloves |
| <input checked="" type="checkbox"/> Leather Gloves (optional) | <input type="checkbox"/> Air-Purifying Respirator |
| <input checked="" type="checkbox"/> Hearing Protection - Ear Plugs/Muffs | <input type="checkbox"/> APR Cartridges |
| <input checked="" type="checkbox"/> ANSI Approved Safety Vest | <input type="checkbox"/> Tyvek coveralls |
| <input type="checkbox"/> Other | |

Only ANSI approved PPE and NIOSH approved respirators will be assigned for use. The use applications for this equipment are summarized in the following matrix. Specific procedures are further described below.

TASKS	PPE										
	Hard Hat	Safety Glasses	Leather or Synthetic Safety Toe Boots	Chemical Resistant Boots	Disposable Inner Gloves	Chemical Resistant Gloves	Leather or Synthetic Work Gloves	Ear Plugs/Muffs	Air-Purifying Respirator	APR Cartridges	ANSI Class II Safety Vest
General Survey Non-Sampling Activities	X	X	X					X			X
Soil sampling	X	X	X		X		X	X			X

5.1 Respiratory Protection

Respiratory protection will not be required during sampling activities. The SSO, in consultation with the Project Manager, will determine the need for upgrading the level of protection from "D" to "C". If it is determined that respiratory protection is required, personnel shall don a full facepiece or half-mask air-purifying respirator fitted with a combination organic vapor (Black), or organic vapor-acid gas (Yellow) and HEPA (P100, Magenta) cartridge. If unanticipated conditions arise that warrant the use of respiratory protective equipment, the Project Manager will immediately contact the Consulting Certified Industrial Hygienist.

5.2 PPE – Level D Protection

The protective equipment to be donned by personnel working in the sampling areas (Exclusion Zones) includes:

- Body Protection: Body protection shall include the use of "work clothing," including long pants and long- or short-sleeved shirts, and Class II ANSI approve safety vest.
- Head Protection: Non-metallic hard hats shall be worn by all personnel; ref. T8 CCR §§1514 & 3385 Head Protection.
- Hearing Protection: Hearing protection shall include the use of foam ear inserts or muffs; ref. T8 CCR §5098.
- Eye Protection: Protective eye wear (i.e., safety glasses) shall be worn by personnel working in direct proximity to operating heavy equipment and highway traffic; ref. T8 CCR §§1514 & 3385 Eye Protection.
- Hand Protection: Appropriate hand protection shall be required for employees whose work involves unusual and excessive exposure of hands to cuts capable of causing injury or impairments; ref. T8 CCR §§1514 & 3384 Hand Protection.
- Foot Protection: foot protection, such as steel toed shoes or boots shall be required for employees who are exposed to foot injuries from electrical hazards, falling objects, or crushing or penetrating actions; ref. T8 CCR §§1514 & 3385 Foot Protection.

5.3 PPE – Level "C" Protection

Level D Protection may be up-graded to Level C protection if at any time the effectiveness of controls is a concern. However, Level C protection shall only be downgraded upon approval by either the Project Manager, or the SSO in consultation with the Consulting CIH.

5.4 Miscellaneous Safety Equipment

Additional protective equipment to be available to personnel working at the site includes portable radios/walkie talkies or cell phones shall accompany all personnel.

6.0 DECONTAMINATION

The Project Manager or SSO will establish a work zone around each sampling location. The zone will be established to minimize the potential spread of contaminated soils.

The following decontamination (cleansing/disposal) procedures for equipment and PPE have been developed with the intent of reducing the potential for the transfer of hazardous soil from the site(s). Decontamination should be performed in direct proximity to each work area. The primary principle in consideration of decontamination procedure is: Avoid unnecessary contamination of PPE and Sampling Equipment.

6.1 Equipment Decontamination

Decontamination of soil sampling equipment shall include washing with a solution of TSP, Alconox®, or Liquinox® and water followed by a tap water rinse and a third rinse of deionized water between samples and before vacating the work area.

6.2 PPE Decontamination

The project manager will determine the necessity for and arrangement of decontamination appropriate to this project. Consumable PPE may be discarded as general refuse. Brush loose dust and soil from pants and shoes before entering vehicles.

Respirator decontamination, if required, shall include a wash with soap and water followed by a clean water rinse.

7.0 EMERGENCY RESPONSE PROCEDURES

7.1 Physical Injury

In the event of an accident resulting in physical injury, call emergency service personnel immediately and perform first aid commensurate with training and seriousness of the injury. Severely injured personnel are to be transported only by emergency service personnel and/or by ambulance personnel, unless a life-threatening condition is judged to exist that must be addressed immediately.

The Project Manager is to be notified by the SSO, as soon after the injury as practical, regarding the nature of the accident. The Project Manager or designee will prepare a written report within 24 hours of the accident.

7.2 Catastrophic Event

In the event of a catastrophic event (e.g., severe personal injury, fire, explosion, and/or property damage), notify the fire/safety and rescue department immediately by dialing 911.

Any accident involving serious injury will require suspension of site activities until the Project Manager (or designee) has completed a review of the events and site conditions and authorized work to resume.

The Project Manager (or designee) will notify the nearest Cal/OSHA District Office immediately (within 8-hours) by phone or fax upon learning of a death or serious injury:

Van Nuys District Office
6150 Van Nuys Blvd, Suite 405
Van Nuys, CA 91401

Tel: (818) 901-5403
Fax: (818) 901-5578

7.3 Emergency Telephone Numbers

Fire/Police/Medical Assistance: **911**
Poison Control: **(800) 876-4766**

Other phone numbers may be available or required for emergency response at specific sites. Check with onsite representatives before mobilizing to the job site.

7.4 Project Site Address

Site Location: State Route 210, PM R5.762, Los Angeles County, California

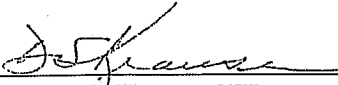
7.5 Hospital Address and Route

Hospital Reference: Olive View UCLA Medical Center
14445 Olive View Dr. Sylmar, CA 91342
(818) 364-1555

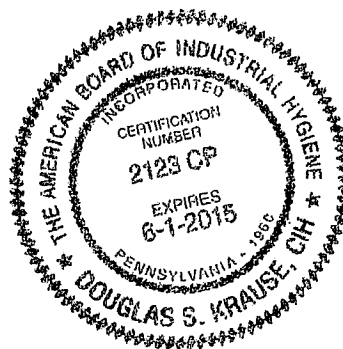
Directions: Take State Route 210 west for 2.5 miles. Take exit #2 Roxford St/Sylmar and turn right onto Roxford Street. Bear right onto Olive View Drive (see Vicinity Map, Figure 1).

8.0 PLAN APPROVAL

The undersigned has reviewed and approved this Health and Safety Plan prepared for the LA-210 site investigation as described herein.

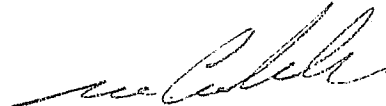


Douglas S. Krause, CIH
Geocon Consulting Certified Industrial Hygienist
ABIH Certification No. 2123, Exp. June 1, 2015



November 28, 2011

Date



Mike Conkle, PG
Project Manager

November 28, 2011

Date

The following personnel, including subcontractors involved with the project activities have reviewed, or received a copy of this Plan and Attachment A and agree to follow the health and safety procedures described herein.

Print Name	Title	Signature	Date

I. SUBSTANCE IDENTIFICATION INORGANIC LEAD

- A Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.
- B Compounds covered by the standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.
- C Uses: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.
- D Permissible exposure: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 $\mu\text{g}/\text{m}^3$) averaged over an 8-hour workday.
- E Action level: The standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 $\mu\text{g}/\text{m}^3$) averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. HEALTH HAZARD DATA

- A Ways in which lead enters your body. When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.
- B Effects of overexposure to lead.
 - 1. Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead

adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

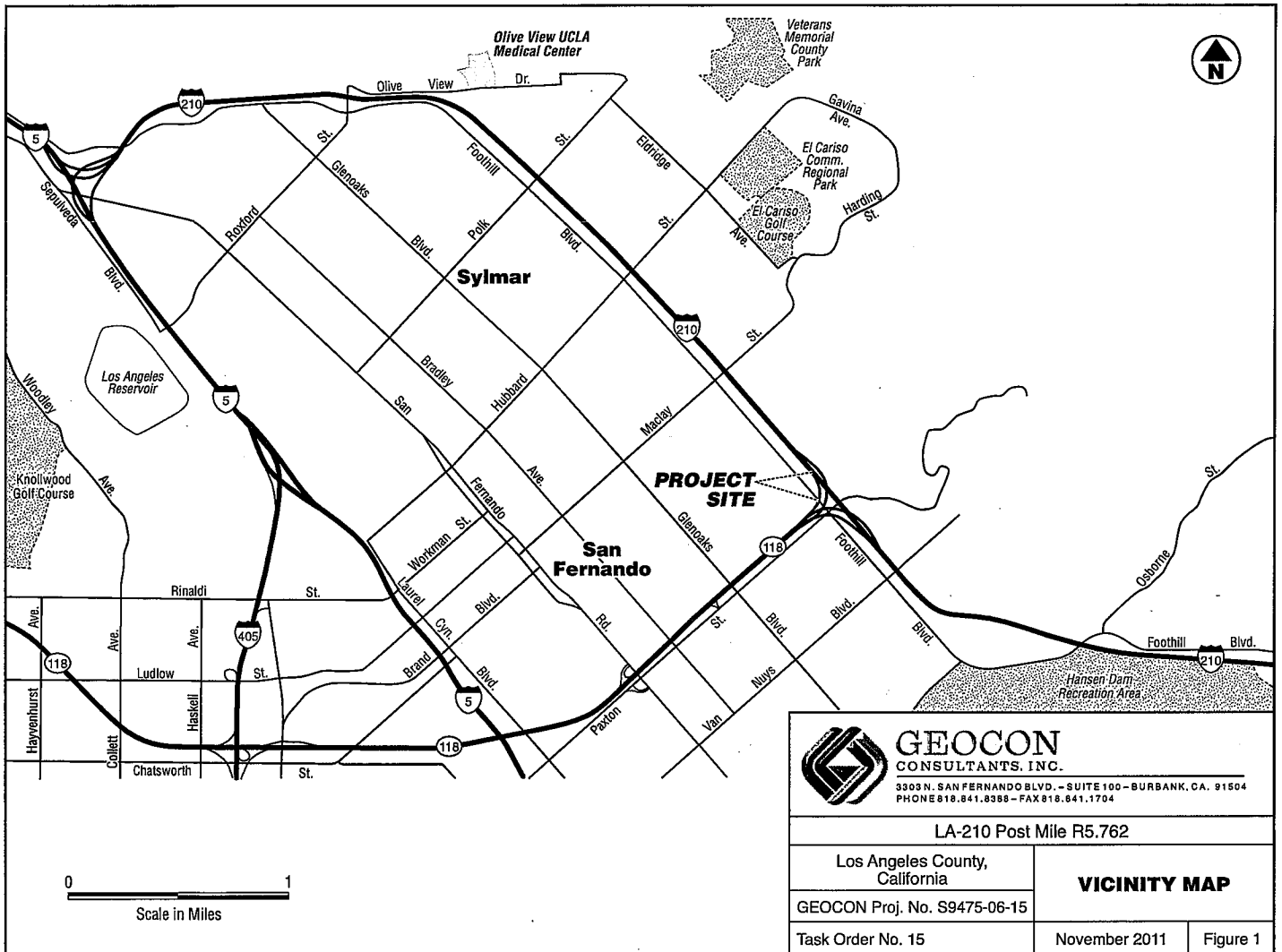
2. Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.
3. Exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (Reference to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs about 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

4. Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD., SUITE 100 - BURBANK, CA. 91504
PHONE 818.841.8388 - FAX 818.841.1704

LA-210 Post Mile R5.762

Los Angeles County,
California

VICINITY MAP

GEOCON Proj. No. S9475-06-15

Task Order No. 15

November 2011

Figure 1